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Nutritional Status, Psychological Stress, and Lifestyle Habits among Cancer Patients in Gaza Strip, Palestine

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Abstract

Background: Cancer is an important public health problem in the world. Weight loss and malnutrition are common among cancer patients, both core of complications during the disease. Also, psychological stress and lifestyle habits have an impact on patients' quality of life. This study aimed to assess the nutritional status, psychological stress and lifestyle habits among cancer patients in the Gaza strip.

Methods: A cross-sectional study was conducted at European Gaza Hospital and Abdul Aziz Al Rantissi Specialist for Children Hospital during February 2019 among 100 cancer patients in Gaza Strip. A self-administered questionnaire was used to investigate demographic and socioeconomic status, anthropometric measurements, clinical examination, lifestyle habits, psychological stress, and dietary habits. Statistical analysis was carried out using descriptive SPSS version 24.

Results: Most of the patients were married females with low monthly income. 14% of patients live in asbestos houses, 59.0% lose their weight, 55.0% were overweight or obese and 59.0% have high waist circumference (WC). Regarding lifestyle factors, 75.0% of patients were low or moderate activity and 9% were smokers. The majority of patients were psychologically stressed. About 46.0% lose their appetite. In general, patients eat diverse types of carbohydrates, protein, vegetables and fruits but also eating junk food. In the current study colon cancer was the highest percentage among cancer patients. The patients received different types of cancer treatments.

Conclusion: Many risk factors were found in the current study; asbestos houses, obesity and overweight, smoking, physical inactivity, junk food, and family history. The majority of patients did not suffer from malnutrition. Psychological stress was common among participants.

Keywords: Nutritional status, Psychological stress, Lifestyle habits, Cancer, Gaza strip

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Introduction

Cancer is a major public health problem worldwide (Siegel & Jemal, 2016) and is a leading cause of death in both more and less economically developed countries (Torre et al., 2015). It is estimated to have risen to 18.1 million new cases and 9.6 million deaths in 2018. One in 5 men and one in 6 women worldwide develop cancer during their lifetime, and one in 8 men and one in 11 women die from the disease (WHO, 2018). According to the Palestinian Health Information Center (PHIC) and Ministry of Health (MoH) annual reports in Palestine for 2018. There was a 5.8% increase in cancer cases. The reported crude incidence rate was 117.7 per 100,000 populations (MoH, 2018).

Malnutrition is a possible complication in patients with cancer and can be the first symptom to reveal the presence of the disease. Even before starting anticancer treatment, patients can experience profound metabolic and physiological alterations with increased needs of macro- and micronutrient (Santarpia & Pasanisi, 2011). Studies indicate that malnutrition and weight loss are prevalent among 20 to 80% of oncologic patients (Khoshnevis et al., 2012; Kubrak & Jensen, 2007). Nutrition is an important factor in treatment that affects the patient's mortality and morbidity so that about 20% of these patients die of the symptoms caused by malnutrition (Leuenberger et al., 2010).

Medical treatment of cancer patients usually focuses on the administration of cytotoxic agents and/or radiation therapy. These tools can potentially eradicate or reduce tumor size but may have several toxic side effects that in turn can also weaken the patient,

particularly by decreasing appetite or inducing nausea and vomiting, fatigue, and asthenia)Norman et al. ,2008). Although weight loss is predominantly due to loss of fat mass, the morbidity risk is given by the decrease in muscle mass (Valenzuela-Landaeta et al., 2012). Malnutrition, if not properly and early treated, unavoidably progresses to cachexia (Braun & Marks, 2010). Not all malnourished patients are cachectic, but all cachectic patients are invariably malnourished (Muscaritoli et al., 2010)

Regarding psychological stress, depression is a common comorbidity in cancer cases, affecting > 10% of patients. A cancer diagnosis is life-changing and is a source of considerable psychological and emotional stress. Because of this, Non-pathological sadness may be a normal response to a cancer diagnosis (Smith, 2015). Several studies have shown an association between psychological stress and cancer growth and metastasis in animal models and case studies of cancer patients (Jin Shin et al., 2016; Kim et al., 2011; Nikbakhsh et al., 2014). Stress induces the secretion of stress-related mediators, such as catecholamine, cortisol, and oxytocin, via the activation of the hypothalamic-pituitary-adrenocortical (HPA) axis or the sympathetic nervous system (SNS). These stress-related hormones and neurotransmitters adversely affect stress-induced tumor progression and cancer therapy (Jin Shin et al., 2016).

However, healthy lifestyle habits have been associated with improved health outcomes and quality of life and, for some cancers, reduced risk of recurrence and death (Denlinger et al., 2014). The national comprehensive cancer network (NCCN) Guidelines for Survivorship therefore recommend that cancer survivors be encouraged to achieve and maintain a healthy lifestyle, with attention to weight management, physical activity, and dietary habits. Also, Survivors should be advised to avoid tobacco products, with emphasis on tobacco cessation if the survivor is a current smoker or user of smokeless tobacco (Denlinger et al., 2014).

Methods

This study is a descriptive, cross-sectional study in which self-administered ques¬tionnaire was used to evaluate nutritional status, psychological stress and lifestyle habits of the patients. The study was conducted at governmental hospitals; European Gaza Hospital in Khan Younis and Abdul Aziz Al Rantissi Specialist for Children Hospital in Gaza. The study was conducted in February 2019.

The participants of this study were cancer patients of over 3 years old who had referred to oncology departments and were diagnosed as having malignancy in different types of cancer. The participants were selected randomly and the total number of cancer patients was 100. Written informed consent was obtained from all the participants or their families before data collection.

The questionnaire evaluates variables such as socio-demographic factors, anthropometric measurements, clinical examination, lifestyle habits, psychological stress, and dietary habits. All data entry and analysis were performed by the Statistical Package for Social Sciences program (SPSS) version 24. Statistical analysis performed included the descriptive analysis.

Results

Socioeconomic and demographic characteristics

The socioeconomic and demographic factors among the study participants described in Table 1. However, the female percent was 66% compared to males 34% and there 21%, 69%, 1% and 9% for single, married, divorced, and widowed, respectively. Regarding educational level, Only 29% have university degrees. Also, there only 17% of patients have work. The majority of patients 89% live in cement and 16% live in asbestos. Patients' distribution in the Gaza strip was 8%, 33%, 16%, 26% and 17% for North Gaza, Gaza, middle area, Khan Younis and Rafah. For the income, most of the patients 77% have less than 1475 IL in the month.

Variable		N (100)	%
Gender	Female	66	66.0
	Male	34	34.0
Material status	Single	21	21.0
	Married	69	69.0
	Divorced	1	1.0
	Widowed	9	9.0
Education level	Nursery school	4	4.0
	Primary school	20	20.0
	Prep school	18	18.0
	Secondary school	29	29.0
	University	29	29.0
Job	Yes	17	17.0
	No	83	83.0
House-kind	Asbestos	16	16.0
	Cement	84	84.0
Region	North Gaza	8	8.0
	Gaza City	33	**33.0**
	Middle Area	16	16.0
	Khan Younis	26	26.0
	Rafah	17	17.0
Average monthly income IL	Less than 1475	77	77.0
	1475-2499	12	12.0
	2500-3500	6	6.0
	More than 3500	5	5.0

Table 1: Socioeconomics and demographic characteristics

Age and anthropometric measurements

The mean age among the study participants was 49.75 ±18.17 years with minimum age 3, and the maximum age of 83 years. Also, the mean of weight and high were 68.36±19.35 and 160.24±17.01, respectively. Besides, the mean of waist circumference and muscular upper arm circumference were 99.80±16.83 and 32.09±5.60, respectively. Refer to Table 2

Regarding weight changing, there 88% of participants have weight change, 29% of them gain weight and 59% lose weight (Table 3). For body mass index (BMI) classification, there 35% of participants have healthy body weight, 10% have low body weight and 45% have overweight or obesity. However, for waist circumferences (WC) classifications, there 30% and 59% for normal WC and high WC, respectively. About mid-upper arm circumferences (MUAC), 93% of participants were normal and 5% were malnourished. Refer to Table 4

Variable	Mean(SD)	Minimum	Maximum
Age	49.75(18.17)	3	83
Weigh (wt.)	68.36(19.35)	13.5	107
High (ht)	160.24(17.01)	92	189
Waist circumference (WC)	99.80(16.83)	54	138
Muscular upper arm circumference (MUAC)	32.09(5.60)	16	45

Table 2: Age and Anthropometric measurements

Variable		%
Changing weigh after cancer	Yes	88.0
	No	12.0
Nature of changing	Weight gain	29.0
	Weight loss	59.0

Table 3: Weight changing

BMI	%	WC	%	MUAC	%
Underweight	10	Normal*	30	Malnourished	5
Normal	35	High	59	Normal*	93
Overweight	28	Missing**	11	Missing	2
Obese	27	*WC for male adults ≤102 cm, WC for female adults ≤88 cm **Missing are participants with age less than 18 years.		* MUAC for male ≥ 23 cm normal, < 23 cm malnourished MUAC for female ≥ 22cm normal, < 22 cm malnourished MUAC for children ≥ 14cm normal, < 14 cm malnourished	

Table 4: Anthropometrics classification for study participants

Lifestyle habits

Concerning physical activity, only 6 % of participants were active, and the majority 45% have low activity. Also, there 9% of the patient smoker, 7% past smoker, 23% passive smoker and 61% nonsmoker (Table 5).

Variable		%
Physical activity	Low Moderate Active	45.0 30.0 6.0
Smoking habits	Heavy smoker Light smoker Passive smoker Past smoker Nonsmoker	4.0 5.0 23.0 7.0 61.0

Table 5: Lifestyle habits among study participants

Psychological stress

As shown in table 6 which describes psychological stress among study participants, the majority of participants suffer from psychological stress and express it in different forms such as crying, losing interest in favorite activities, fast emotion, thinking, stay alone, becoming moody and becoming depressed. There 25% of patients have stress from their families, 11% from the community and the same percent from their work. 75% of participants suffer from stress daily. There 34% of participants take sedative drugs and 17% going to the psychological support center.

Variable		%
Sources of psychological stress	Family	25.0
	Community	11.0
	work	11.0
	Other	53.0
Stress was on a daily basis	Yes	78.0
	no	22.0
Stress decrease after resting	Yes	71.0
	No	29.0
Crying over usual	Yes	53.0
	No	47.0
Losing interest in favorite activities	Yes	79.0
	No	21.0
Fast emotion and sticky	Yes	82.0
	No	18.0
Less efficient than you think to be	Always	32.0
	Often	36.0
	Sometimes	30.0
	Rare	6.0
	Never	6.0
Pain	Stomachache	18.0
	Headache	28.0
	Pain in all the body	54.0
Always thinking	Yes	76.0
	No	24.0
Want to talk with specific people	Yes	71.0
	No	29.0
Stay alone	Yes	42.0
	No	58.0
Becoming moody	Yes	74.0
	No	26.0
Using sedative drugs	Yes	34.0
	No	66.0
Becoming depressed	Yes	57.0
	No	43.0
Going to the psychological support center	Yes	17.0
	No	83.0
If yes. Getting benefits from these center	Yes	13.0
	No	4.0

Table 6: Psychological stress among study participants

Dietary habits

There some tables describe dietary habits among study participants. At first, table 7, which describes the nature of meals that participants eat. However, 54% of patients have a good appetite. Also, half of the participants eat lunch regularly and prefer it among meals and 58% eat less than 3 meals in the day. Also, 55% need a special type of food to eat it, 79% eat all sources of carbohydrates and 82% eat plant and animal meats as sources of protein. 93% of participants eat vegetables and fruits.

Regarding junk food, there 70% of patients eat junk food and 43% of them eat 1-3 times weekly. About reasons for eating junk food, there 36%, 16%, 7%, 2% and 9% for food is delicious, no healthy alternative, fast preparation, low cost and other, respectively. There 62% of patients have knowledge about health risks of junk food and 46% able to stop eating junk food easily. Refer to table 8.

Variable		%
Good appetite	Yes	54.0
	No	46.0
Preferable meal	Breakfast	38.0
	Lunch	51.0
	Dinner	3.0
	Snacks	8.0
Number of meals/daily	Less than 3	58.0
	3-5 meal	42.0
Need a special type of food	Yes	55.0
	No	45.0
Kind of carbohydrates that you eat	Bread	4.0
	Rice	1.0
	Potatoes	4.0
	All	79.0
	Bread and rice	2.0
	Bread and potatoes	10.0
kind of protein do you eat	Animal	10.0
	Plant	8.0
	Animal and plant	82.0
Eating fresh vegetable	Yes	93.0
	No	7.0
Eating fresh fruit	Yes	93.0
	No	7.0

Table 7: Nature of meals that participants eat

Variable		%
Eating junk food	Yes	70.0
	No	30.0
Average of eating junk food	1-3 times weekly	43.0
	4-6 times weekly	19.0
	Less than 3 times daily	7.0
	More than 3 times daily	1.0
Reasons for eating junk food	Delicious	36.0
	Fast preparation	7.0
	Low cost	2.0
	No healthy alternative	16.0
	Other	9.0
Knowledge about health risks caused by junk foods	Yes	62.0
	No	8.0
Ability to stop eating junk food	Easy	46.0
	Difficult	18.0
	impossible	6.0

Table 8: Junk food among study participants

Clinical examination

The majority of patients who have colon cancer with 32%, then breast cancer 29%, gland cancer 11%, respiratory cancer 9%, blood 5%, cervical 5%, bone 5%, brain cancer 2%, skin cancer 1% and bladder cancer 1%. Refer to Table 9.

Type of cancer	%
Blood cancer	5.0
Breast cancer	29.0
Gland cancer	11.0
Pulmonary	9.0
Colon cancer	32.0
Skin cancer (melanoma)	1.0
Cervical cancer	5.0
Bladder cancer	1.0
Bone cancer	5.0
Brain cancer	2.0

Table 9: Types of cancer among study participants

Discussion

In the current study, the number of female patients is more than male patients and this is known in Palestine country as described in the annual health report Palestine 2018 (MoH, 2018). Also, married and unemployed patients were the highest percent. Cancer affects people in different educational levels and different regions in the Gaza strip. The majority of patients 77.0% have low income and this reflects the poverty among Palestinian and this agrees with the Palestinian central bureau of statistics (PCBS, 2017) which specified in 2017 the percentage of poverty is very high in Gaza. However, 16.0% of participants live in house built from asbestos and their many studies described the health risks of asbestos particularly occurrence of cancer such as meta-analysis for ovarian cancer (Camargo et al., 2011), study for lung cancer (McCormack et al., 2012) and many others (Pasetto et al., 2014; Tossavainen, 2010).

Thirty percent of patients have weight gain after diagnosis of cancer and 55.0% of participants was overweight or obese, and 59.0% have high waist circumference (WC), that means some patients have overweight before incidence of cancer and this consistent with other researches which showed that obesity is a major risk factor of cancer (De Pergola & Silvestris, 2013; Lauby-Secretan et al., 2016; Wolin et al., 2010). Weight gain after incidence of cancer illustrated in many studies (Nichols et al., 2009; Playdon et al., 2015) particularly for breast cancer and it has many consequences such as significant risk for the development of co-morbid conditions (Vance et al., 2011), which need weight management and stopping weight gain. Also, 59.0% of participants loss their weight after cancer incidence, 10.0% was underweight and 5.0% was malnourished according to mid-upper arm circumference (MUAC) and this agreed with previous studies (Ehrsson et al., 2012; Mariani et al., 2012) which describe weight loss as sign should deserve major attention in cancer patients. That attributed to reduced food intake due to systemic effects of the disease, local tumor effects, psychological effects or adverse effects of treatment (Van Cutsem & Arends, 2005).

The majority of patients 75% were low active or moderately active. Wolin et al., 2010 (Wolin et al., 2010) showed that physical inactivity was caused by the causes of cancer. A previous study (McTiernan & VonGruenigen, 2010) revealed that higher levels of physical activity could improve cancer–specific and all-cause mortality and another (Vijayvergia & Denlinger, 2015) showed that physical inactivity linked with the risk of developing cancer and likely cancer-related outcomes. In this study a few participants are smokers and this is encouraging because a lot of previous studies showed the role of smoking in cancer incidence (Alexandrov et al., 2016; Tao et al., 2013; Wang et al., 2010) and increasing symptom burden during and following treatments of cancer (Peppone et al., 2011).

All results about psychological stress among cancer patients indicate that the majority of patients were stressed in daily basis, depressed, always thinking, becoming moody, emotionally and less efficient and this agreed with other studies (Holland & Alici, 2010; Vahdaninia & Montazeri, 2010) which mentioned that psychosocial distress is highly prevalent and diverse at all stages of cancer care and need to manage it. Moreno-Smith et al., 2010 (Moreno-Smith et al., 2010) and Tilan & Kitlinska, 2010 (Tilan & Kitlinska, 2010) identified psychosocial factors including stress, chronic depression and lack of social support as risk factors for cancer progression and metastasis.

The findings of the present study revealed that 46.0% of participants lost their appetite and this agrees with other studies (Navari & Brenner, 2010; Paulsen et al., 2014; Pirri et al., 2013) that tried to treat appetite loss and anorexia that related to cancer. Loss of appetite results from chemotherapy and other cancer treatments (Boltong et al., 2014). Most of the patients eat less than three meals daily and depend on breakfast or lunch for their energy. The majority of participants eat diverse types of carbohydrates, protein, vegetables and fruits and this is encouraging, although there is no evidence for the importance of high intake of fruits and vegetables on cancer prognosis (He et al., 2017; McTiernan et al., 2010; Yassibas et al., 2012). Regarding junk food, 70.0% of patients eat junk food and 62.0% of them knew the health risks of eating junk food. Yahya et al. 2013 (Yahya et al., 2013) showed the ill consequences of eating fast food that includes many types of cancer and interpreted eating it in the society of Pakistan as expedient and delicious and this agreed with the present study. Also, Wolin et al., 2010 (Wolin et al., 2010) showed the nature of diet as the cause of cancer.

However, in the current study, colon cancer was the highest percentage among patients than breast cancer and this disagreed with health annual report 2018 in Palestine (MoH, 2018) which appeared that the breast cancer was the most common than colon cancer, that could be due smallness of sample size.

Conclusion and Recommendation

To conclude, many risk factors were found in the current study; asbestos houses, obesity and overweight, smoking, physical inactivity, and junk food. The majority of patients did not suffer from malnutrition; some of them need to weight management and decrease their weight. However, psychological stress was common among participants because of this, and the authors recommend policymakers to made psychological support centers for cancer patients which psychological adjustment following the occurrence of cancer remains a key issue among the survivors. Though junk food is an expedient and delicious addition to a diet, it can have serious health and common effects in which patients need to decrease eating it.

Limitation

Some of the patients were young that made handling with them difficult and made missing in study factors such as mid-upper arm circumference (MUAC) and waist circumference (WC). Also, the sample size was small that can affect some results.

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